

67108-040; Sung 2

IN THE SPECIFICATION:**Page 4, lines 11-13**

~~FIG. 1~~ is FIGS. 1A and 1B are a high level block diagrams of a Doppler-corrected rake finger structure used in a communications receiver of the present invention.

Page 4, lines 17-19

~~FIG. 3~~ is AFIGS. 3A, 3B, and 3C are detailed block diagrams of the Doppler-corrected rake finger structure shown in ~~FIG. 1~~FIGS. 1A and 1B.

Page 5, lines 24-30 and Page 6, lines 1-2

As shown in ~~FIG. 1~~FIGS. 1A and 1B, a high level block diagram of a rake receiver 10 having a Doppler-corrected rake finger structure is illustrated. The signal is down converted 10a and descrambled 10b. The signal is next split at baseband via a mixer and phase shift circuit 11 into in-phase (I) and quadrature (Q) components and into in-phase (I) first and second paths and quadrature (Q) first and second paths. The first path includes a pilot channel rake section 12 having I and Q Doppler estimation channels 14, 16 for estimating the Doppler change in frequency based on a common pilot channel.

Page 7, lines 25-30

For purposes of explanation, a description of the algorithm used with differential detection in the rake receiver design shown in FIGS. 1 and 3 is set forth in detail, followed by a detailed description of the circuit shown in ~~FIG. 3~~FIGS. 3A through 3C that implements the method and algorithm.

Page 10, lines 9-17

Let $r_I(t)$ and $r_Q(t)$ represent the in-phase and quadrature part of the received signal for another rake finger that is used to receive the data channel, such as shown in ~~FIGS. 1 and 3~~FIGS. 1A, 1B, 3A, 3B, and 3C. Therefore:

67108-040; Sung 2

$$r_1(t) = \sqrt{2p\alpha(t)a_1(t)c_1(t)} \sin(2\pi\Delta ft + \theta(t)) + n_1(t)$$

$$r_Q(t) = \sqrt{2p\alpha(t)a_Q(t)c_Q(t)} \cos(2\pi\Delta ft + \theta(t)) + n_Q(t)$$

Equation 6

Page 10, lines 35-37 through Page 11, lines 1-6

~~FIG. 3~~FIGS. 3A through 3C ~~show~~show a more detailed block circuit diagram of the rake finger structure shown in FIG. 1. There is no illustrated acquisition and tracking circuit as would typically be used in a rake receiver. The phase error introduced due to the imperfect acquisition and tracking is considered in $\theta(t)$, which can be alleviated via simple averaged channel estimation. There is a $2NT_c$ delay in the other fingers, because it takes $2NT_c$ samples to obtain I_k , I_{k+1} , Q_k , and Q_{k+1} .